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MAGNETORESISTIVE SENSOR WITH MAGNETOSTATIC  
COUPLING OF MAGNETIC REGIONS

ABSTRACT OF THE DISCLOSURE

5 A magnetic field sensor is described incorporating a plurality  
of magnetic stripes spaced apart on the surface of a substrate such  
that the stray magnetic fields at the ends of the magnetic stripes  
are magnetostatically coupled and the magnetic stripes are  
magnetized respectively in alternating directions, nonmagnetic  
conductive material positioned in the spaces between the magnetic  
10 stripes and electrodes for passing current crosswise through the  
plurality of magnetic stripes to detect a change in resistance by  
the giant magnetoresistive effect (MGR). The invention overcomes  
the problem of detecting low magnetic fields since the magnetic  
fields required to saturate magnetic stripes depends on the  
15 magnetostatic coupling which in turn can be controlled by the  
geometry and position of the magnetic stripes in the sensor.